

What is claimed:

1. A model repository system, comprising:

a data store for storing a plurality of data records;

a data mining application for analyzing the data records and for generating a plurality of

data models; and

a model repository for storing the generated data models, wherein the model repository includes one or more index structures containing a plurality of attributes associated with the data models.

2. The model repository system of claim 1, further comprising:

a model repository facility for exporting the generated data models to the model repository.

3. The model repository system of claim 2, further comprising:

a project folder store associated with the data mining application for temporary storage of the generated data models.

4. The model repository system of claim 3, wherein data models from the generated data models are selected for exporting into the model repository, wherein the model repository facility exports

the selected data models from the project folder store to the model repository.

5. The model repository system of claim 1, further comprising:

a search and retrieval interface for searching the one or more index structures in the model repository and for retrieving one or more of the data models based on the searching by the search and retrieval interface.

5 6. The model repository system of claim 5, wherein the search and retrieval interface is incorporated into a software application for automatically searching the index structures in the model repository and for retrieving one or more of the data models.

10 7. The model repository system of claim 6, wherein the software application includes a comparison algorithm for determining which of the data models of the one or more retrieved data models is the most relevant model.

15 8. The model repository system of claim 5, wherein the search and retrieval interface is a stand-alone graphical user interface for manually searching the index structures in the model repository and for retrieving one or more of the data models.

9. The model repository system of claim 1, wherein the data store is a data warehouse.

20 10. The model repository system of claim 2, wherein the model repository facility is integrated into the data mining application.

11. The model repository system of claim 2, wherein the model repository facility is a stand-alone software application.

12. The model repository system of claim 1, wherein the one or more index structures include a main index and one or more special indexes, wherein the main index includes attributes of all the data models stored in the model repository, and the one or more special indexes include attributes from a sub-set of all the models stored in the model repository.

13. The model repository system of claim 12, wherein the one or more special indexes include a tree-type index for storing attributes associated with models that are generated using a decision tree algorithm.

14. The model repository system of claim 13, further comprising a mini-index associated with the tree-type index for storing a sub-set of all the attributes stored in the tree-type index.

15. The model repository system of claim 13, wherein the attributes stored in the tree-type index include a plurality of splitting variables associated with the decision tree algorithm.

16. The model repository system of claim 1, wherein the one or more index structures are organized into attribute tables.

17. The model repository system of claim 16, wherein the attribute tables include a main attribute table for storing the main index and a tree-type table for storing the tree-type index, wherein the main and tree-type attribute tables include a plurality of rows and columns, wherein each row in the attribute tables is associated with a particular data model, and wherein each column in the

attribute tables is associated with at least one attribute, said attribute tables including a mini-index attribute table that has a plurality of rows and a column, wherein each row in the mini-index attribute table is associated with one attribute in the tree-type attribute table.

5 18. The model repository system of claim 1, wherein the model repository is organized into a plurality of storage levels.

19. The model repository system of claim 18, wherein the plurality of storage levels include a project level, a diagram level, and a model level.

10 20. The model repository system of claim 19, wherein a particular data model is stored in the model repository at the model level.

15 21. The model repository system of claim 20, wherein each model stored at the model level is associated with a particular diagram stored at the diagram level.

22. The model repository system of claim 21, wherein each diagram stored at the diagram level includes a set of specifications for operating the data mining application.

20 23. The model repository system of claim 22, wherein each diagram stored at the diagram level is associated with a particular project folder stored at the project level.

24. The model repository system of claim 19, wherein the attributes of each data model are associated with at least one of the model level, the diagram level, or the project level.

25. The model repository system of claim 1, wherein at least one of the attributes is automatically associated with each data model by the data mining application.

26. The model repository system of claim 1, wherein at least one of the attributes is manually associated with the data models by a user of the system.

27. The model repository system of claim 1, wherein the one or more index structures at least includes one index for storing one set of attributes and other indexes for storing other different sets of attributes.

28. The model repository system of claim 2, further comprising:
at least three configuration files stored in the model repository, wherein a first configuration file stores information that is used by the model repository facility in exporting the generated data models to the model repository, and second and third configuration files store information that is used by the model repository system in building the main index in the model repository from attributes supplied by human end users and from the data mining application.

29. The model repository system of claim 2, wherein the model repository facility builds the index structures stored in the model repository after one or more selected models have been exported to the model repository.

30. The model repository system of claim 1, further comprising:

a plurality of model repositories for storing the generated data models, wherein each of the plurality of model repositories includes one or more index structures containing a plurality of attributes that describe the data models stored in the respective model repository.

31. A data modeling method, comprising the steps of:

generating a plurality of data models using a data mining application;

storing the plurality of data models in a database associated with the data mining application;

selecting one or more of the plurality of data models;

exporting the selected data models from the database to a model repository; and

generating an index of the data models stored in the model repository wherein the index is based upon a plurality of attributes associated with the data models in the model repository.

32. The data modeling method of claim 31, further comprising the step of:

organizing the database into a plurality of project folders and storing the data models in the respective project folders within the database.

33. The data modeling method of claim 31, further comprising the step of:

searching the index and retrieving one or more of the data models stored in the model repository.

34. The data modeling method of claim 31, further comprising the step of:

providing a software mechanism for searching the index and retrieving one or more of the data models stored in the model repository.

35. The data modeling method of claim 34, further comprising the step of:

comparing the retrieved data models to determine which model is the most relevant.

36. The data modeling method of claim 31, further comprising the step of:

automatically associating one or more attributes with the data models when they are generated by the data mining application.

37. The data modeling method of claim 31, further comprising the step of:

manually associating one or more attributes with the selected data models before the exporting step.

38. The data modeling method of claim 31, wherein the generating one or more indexes step further includes the steps of:

generating a main index that includes attributes of all the models stored in the model repository; and

generating one or more special indexes that include attributes from a sub-set of all the models stored in the model repository.

39. The data modeling method of claim 31, further comprising the steps of:

organizing main-type index and tree-type index as attribute tables that include a plurality of rows and columns, wherein each row in the attribute table is associated with a particular data model, and wherein each column in the attribute table is associated with a particular attribute; and

5 organizing a mini-index as an attribute table that includes a plurality of rows and one column, wherein each row in the attribute table is associated with one attribute in the tree-type index.

40. The data modeling method of claim 31, further comprising the step of:

10 organizing the model repository into a plurality of storage levels.

41. The data modeling method of claim 31, wherein the exporting step further comprises the steps of:

specifying an address of the model repository;

15 determining whether a user who selected the one or more data models has write access to the model repository; and

if the user does have write access, then exporting the selected data models to the model repository identified by the address,

and if the user does not have write access, then notifying the user that the export

20 operation cannot be accomplished.

42. The data modeling method of claim 41, wherein the exporting step further comprises the steps of:

creating an export object;
initializing the export object;
querying a first configuration file in the model repository to determine what data from the
selected data models is to be exported to the model repository;
5 querying second and third configuration files in the model repository to determine what
data from the data models in the model repository is to build a main index in the model
repository;
configuring the export object based on the querying step; and
invoking an export method on the export object; and
10 building the main index based on the querying of the second and third configuration files
step.

43. The data modeling method of claim 31, further comprising the steps of:

selecting one or more additional data models;
15 exporting the selected one or more additional data models from the database to the model
repository; and
regenerating the index.

44. The data modeling method of claim 31, further comprising the steps of:

20 generating one or more indexes of the data models stored in the model repository wherein
the indexes are based upon a plurality of attributes associated with the data models in the model
repository.

selecting one or more additional data models;

exporting the selected one or more additional data models from the database to the model repository; and
regenerating the one or more indexes.

45. A data modeling method, comprising the steps of:

associating one or more attributes with each of a plurality of data models;
exporting the plurality of data models to a model repository;
generating one or more index structures comprising the one or more attributes of each of the data models in the model repository; and
providing a search mechanism and a retrieval mechanism for searching the one or more index structures in order to retrieve one or more data models from the model repository.

46. A computer-implemented model repository system for managing data models, comprising:

a model repository that stores the data models;
a data input module that processes attribute information descriptive of the data models;
and
at least one searchable index whose data structure contains storage locations for the attribute information;
said attributes in the index are searchable in order to locate at least one of the data models.

47. The model repository system of claim 46 wherein the data input module includes a model repository facility that exports the data models to the model repository, said model repository

facility building the index structure stored in the model repository after one or more data models have been exported to the model repository.

48. The model repository system of claim 47, further comprising:

5 a first configuration file that stores information that is used by the model repository facility in exporting the data models to the model repository; and

second and third configuration files that store information that is used by the model repository system in building a main index in the model repository from attributes supplied by human end users and from a data mining application.

49. The model repository system of claim 46 wherein the model repository system has a connection to a network and receives an index search request across the network.

50. The model repository system of claim 48 wherein the network is an Internet network.

51. The model repository system of claim 46, further comprising:

a search and retrieval interface for searching the one or more index data structures in the model repository and for retrieving one or more of the data models based on the searching by the search and retrieval interface.

52. The model repository system of claim 46, further comprising:

a project folder store associated with a data mining application for temporary storage of data models generated by a data mining application.

53. The model repository system of claim 46 further comprising:

a software application that includes a comparison algorithm for determining which of the data models is the most relevant model.

54. The model repository system of claim 46, wherein the one or more index structures include a main index and one or more special indexes, wherein the main index includes attributes of the data models stored in the model repository, and the one or more special indexes include attributes from a sub-set of the data models stored in the model repository.

55. The model repository system of claim 54, wherein the one or more special indexes include a tree-type index for storing attributes associated with data models that are generated using a decision tree algorithm.

56. The model repository system of claim 55, further comprising:

a mini-index associated with the tree-type index for storing a sub-set of the attributes stored in the tree-type index.

57. The model repository system of claim 56, wherein the attributes stored in the tree-type index include a plurality of splitting variables associated with the decision tree algorithm.

58. The model repository system of claim 46, wherein the model repository is organized into a plurality of storage levels.

59. The model repository system of claim 58, wherein the plurality of storage levels include a project level, a diagram level, and a model level.

60. The model repository system of claim 59, wherein a particular data model is stored in the model repository at the model level.

61. The model repository system of claim 60, wherein each model stored at the model level is associated with a particular diagram stored at the diagram level.

62. The model repository system of claim 61, wherein each diagram stored at the diagram level includes a set of specifications for operating a data mining application.

63. The model repository system of claim 62, wherein each diagram stored at the diagram level is associated with a particular project folder stored at the project level.

64. The model repository system of claim 59, wherein the attributes of the data models are associated with at least one of the model level, the diagram level, or the project level.

65. The model repository system of claim 46, further comprising:

a plurality of model repositories for storing the data models, wherein each of the plurality of model repositories includes one or more index structures containing a plurality of attributes that describe the data models stored in the respective model repository.

66. The model repository system of claim 46, further comprising:

group-specific indexes for storing group-specific attributes to search the data models in the model repository.

5

67. The model repository system of claim 65 wherein the group-specific indexes are indexes selected from the group consisting of a marketing-specific index for storing marketing-related attributes to search the data models in the model repository, sales-specific indexes for storing sales-related attributes to search the data models in the model repository, and combinations thereof.

002260 2/089960
0966807 092200
10